

WIEB – CEC Natural Gas Workshop

Natural Gas Supply



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California Energy Commission
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Topics & Issues

- **Supply Regions in North America**
- **Supply Network in North America**
- **Reserve Categories & Definitions**
- **Reserve Estimates**
- **Model Inputs (Sample Supply Cost Curve)**
- **Data Sources**
- **Comments & Questions**

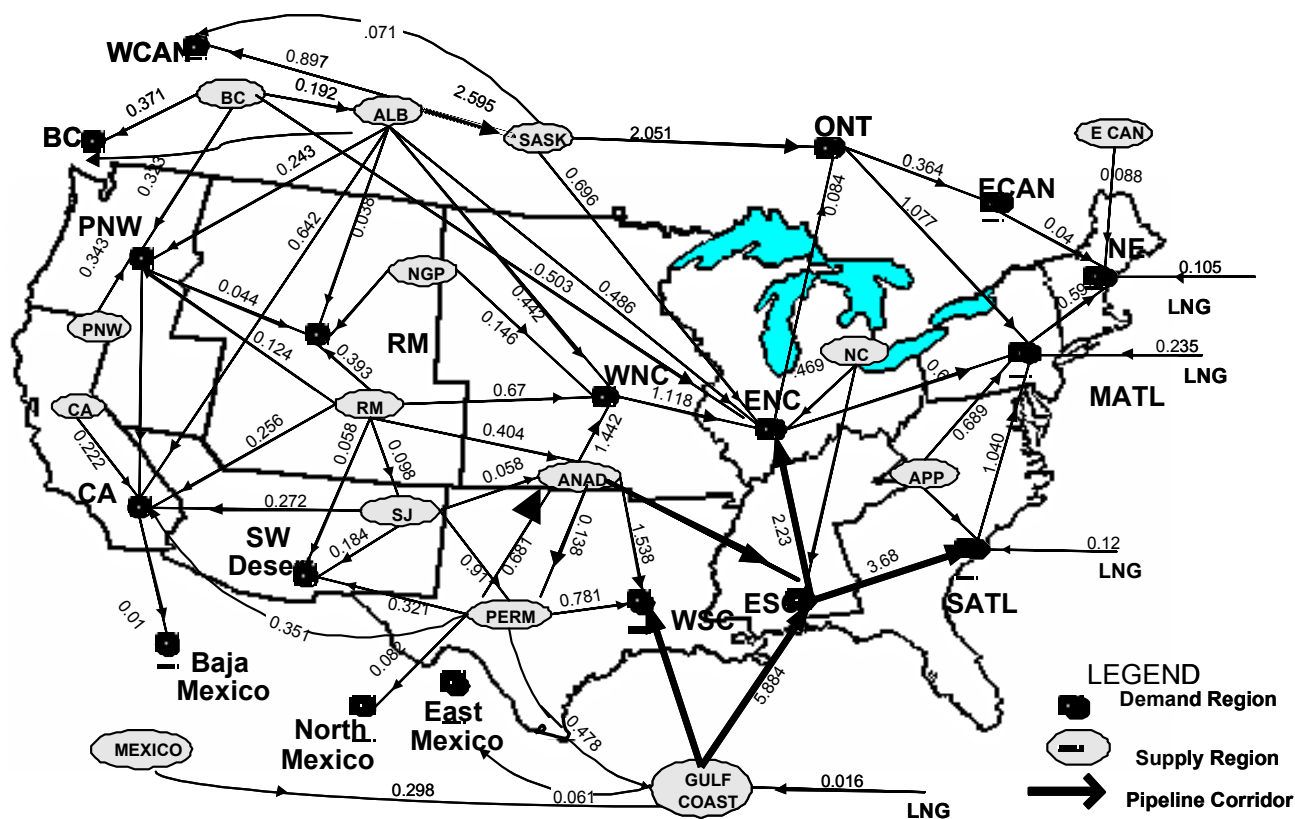


Supply Regions in North America

- **Alaska - North**
- **Alaska - South**
- **Alberta**
- **Anadarko**
- **Appalachia**
- **British Columbia**
- **Northern California**
- **Southern California**
- **San Juan**
- **Eastern Canada**
- **Gulf Coast**
- **Northern Canada**
- **Northern Great Plains**
- **Pacific Northwest**
- **Permian**
- **Rocky Mountains**
- **Saskatchewan**

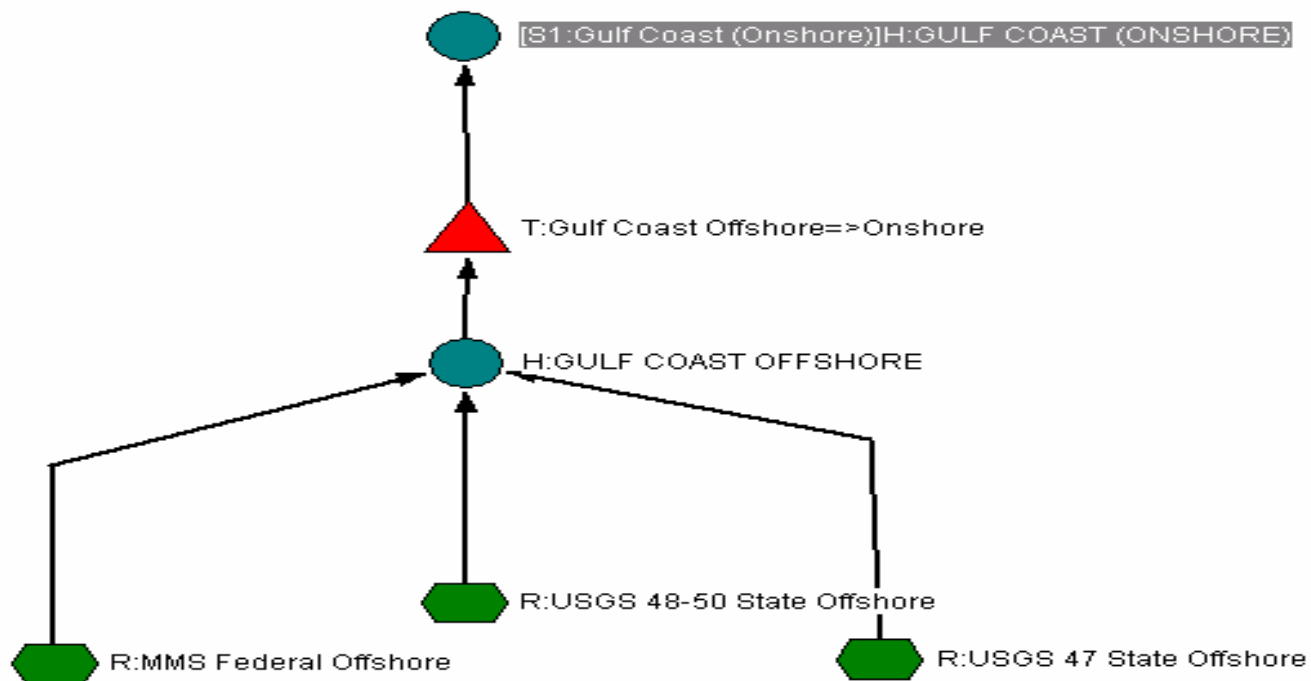


Supply Network in North America





Supply Network in North America (cont'd)





Reserve Categories & Definitions

Proved reserves:

- **Known and developed resources;**
- **Require only O&M for its production;**
- **Economical with today's technology.**



Reserve Categories & Definitions (cont'd)

Potential reserves:

- **Known, but not yet developed;**
- **Require both O&M and capital cost;**
- **These reserves with their associated costs form the basis of the supply cost curves.**



Reserve Categories & Definitions (cont'd)

Reserve Types:

- **Conventional (both proved and potential);**
- **Unconventional**
 - **coal bed methane (proved and potential),**
 - **tight sands (proved and potential),**
 - **shale (potential),**
 - **gas hydrates (potential),**
 - **tar sands (potential).**



Reserve Estimates

Reserve Estimates:

- **Proved: 236 Tcf in the US and Canada;**
- **Potential: 972 Tcf in the US and Canada.**



Sample Supply Cost Curve

| Reserve Estimate, Tcf | Capital Costs, \$/Mcf | O&M Costs, \$/Mcf |
|----------------------------------|----------------------------------|----------------------------------|
| 0.0 | 0.145 | 0.250 |
| 2.0808 | 1.002 | 0.250 |
| 2.6010 | 5.038 | 0.250 |



Data Sources

- **Data Sources include:**
 - **National Petroleum Council;**
 - **USGS;**
 - **Canadian Producers Association;**
 - **Private Industry corporations.**



Issues for WIEB study

- **Supply Adequacy;**
 - **Infrastructure Needs;**
 - **Basis (Price) Differentials.**
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- ***Questions & Comments.***